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Abstract

Strategies for conflict resolution typically rest on an assumption that disputing parties consist of rational actors motivated by instrumental concerns. But the theoretical framework of the devoted actor explains that adherence to sacred values, fusion with a group, and the perception of threat interact to predict costly actions detached from the rational calculation of gain and loss. This article discusses an ongoing research program that aims to inform potential interventions in costly sacrifice at the level of belief adherence—the capacity to decrease an actor's perceived understanding of a rigid belief may prevent or reduce his or her willingness to act violently in its name. A person's assumption of overconfidence in his or her understanding is consistent with the tendency for human beings to feel that they understand things in greater detail than they really do. This tendency is known as the "illusion of explanatory depth." Asking people to give a mechanistic explanation—a step-by-step, causal explanation of a phenomenon, from start to finish, with no gaps—has been demonstrated as a robust way to make people aware of the gaps in their own knowledge. This article discusses the circumstances under which completion of the task may moderate the rigidity with which potential actors adhere to a value. Results from a series of studies are presented, demonstrating preliminary evidence that belief rigidity might mediate action—moderation of the strength with which an individual holds a value or belief may moderate willingness to fight and die in its name. That is, in the peaceful resolution of conflict, ideas may be a viable target.

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Many human beings consider themselves to be fundamentally rational in deliberation and action. Within the framework of rational choice theory, our preferences are perceived to be stable, with relevant costs and benefits weighed critically against desired outcomes.[1] This is the standard economic model of human behavior, theoretically indistinguishable from the principles of calculation and maximization that underpin traditional economic theory. Political approaches to conflict resolution are typically underpinned by an assumption that disputing parties comprise rational actors motivated by the maximization of material gain.[2] But human reasoning has been shown to be influenced by many noninstrumental factors. These include emotions, values, and the context in which decisions are made.

We might expect that the less evidence an individual or group can present to support a belief, the less likely they will be to maintain confidence in that belief. And it is comforting to suppose that beliefs with the power to spawn dangerous consequences would be open to challenge by evidence of their inconsistency. But, contrary to these assumptions, ideas can become "set in stone" in the absence of consistent or logical evidence, and resilient without a sound basis in knowledge and understanding. When the imposition of evidence is an ineffective method of negotiation, we refer to these beliefs as intractable. And though adherence to a belief, even with unyielding rigidity, does not pose inherent danger, in some instances, intractable beliefs underpin the actions of individuals and groups in the perpetuation of intractable—and frequently violent—conflict, resulting in dire consequences for millions around the globe. Pro-group action may manifest in a multitude of ways, from public expression of group ideals, or willingness to protest, to violent action, including fighting and dying.

The direct threat posed by violent action necessitates attempts to understand and moderate willingness to act; the most prominent theoretical framework is that of the "devoted actor."[3] Adherence to sacred values, fusion with a group, and perceived threat to the group or value predict costly sacrifice and extreme behavior uncoupled from the rational calculation of gain. Research in this area rests on fieldwork combined with online studies in regions of conflict, including Israel-Palestine, Libya, and the Kurdish battlefront, where many people are, at the moment, for lack of better terms, devoted and acting.[4] This approach is the gold standard, providing remarkable insight and ensuring ecological validity of results.[5] The strengths of this approach, however, introduce some limitations regarding the *evolution* of a devoted actor from believer and group member to aggressor.

The current investigation relies on the assumption that an actor is underpinned by a believer (one who adheres to an uncompromising ideology). Thus, our investigation refers only to those at the heart of the devoted actor framework, individuals who act voluntarily, and in the name of a cause. Costly sacrifice and extreme behavior is not restricted to this group. Actors may be abducted or forcibly recruited, such as the infamous "child soldiers." Coercion and oppression push some toward violence against their will. Others are enticed by resources, such as money or food. Motivation in these instances is demonstrable—moderated, at least theoretically, by tangible reward. We refer only to those motivated, in part, by ideology.

The purpose of this article is to introduce an ongoing research program that has the potential to advance the field and inform public policy. Two distinct areas of research are integrated: the devoted actor, and the cognitive bias known as "the knowledge illusion" (the tendency for people to be overconfident in their perceived understanding of various phenomena and ideas), with a focus on the beliefs that underpin action. So far, results demonstrate that the primary predictors of action—identity fusion, sacredness, and perceived threat—also demonstrate predictive capacity regarding the resilience of pro-group beliefs, suggesting that belief rigidity might act as

a mediator of action. That is, moderation of the strength with which an individual holds a value or belief may moderate willingness to take extreme action in its defense. Intervention at the level of unyielding belief is potentially powerful—if we could decrease an individual's perceived confidence in the rigid idea for which he or she fights, we might assume that his or her willingness to act in the name of the cause would be reduced to some extent (in some instances, even prior to its emergence).

This article examines the existing literature in a theoretical assessment of the proposed mediation and incorporates preliminary evidence from the authors' studies.

Overview of the Devoted Actor

The relatively new construct of identity fusion is crucial to the devoted actor model.[6] It differs from the traditional construct of group or social identity for which the collective overshadows a concept of the self and personal relationships with other group members.[7] For fused individuals, this distinction remains intact. Members experience an innate sense of cohesion; a union between the personal self and the social self where both remain essential and influential, with the capacity to increase endorsement of pro-group action, independently and in combination.[8] In addition to more abstract ties to the collective, real or imagined bonds are formed with other individual members. These bonds create a sense of kinship among members, capitalizing on evolutionarily bound rules of genetic survival and extending the benefits of genetic relatedness to non-kin. This extension results in the willingness of individuals to sacrifice genetic potential for a fictive "band of brothers."[9] A growing body of literature suggests that the construct of fusion, but not identification, is predictive of extreme or costly behaviors, such as fighting and dying for a group.

The concept of sacredness is also fundamental to the model. Sacred values are those intuited as having an intrinsic value that is inappropriate for the assignment of economic or material value and considered taboo to evaluate on such a scale.[10] For example, democracy is a value that many people would not trade for any monetary exchange. Sacred values may be astounding, including the concept of a god or gods, but there is no limit to values that may be considered sacred within cultural bounds. Sacred values can originate from values once considered commonplace, such as the perception of land as "holy."[11] Commitment to sacred values can increase willingness to take extreme action.[12] Because of their immunity to traditional forms of valuation, we make decisions about sacred values using different rules than those applied to the everyday. To approach the negotiation of sacred values with material incentives (for example, offering a parent money in exchange for his or her child) is not only futile but will typically *reinforce* adherence to the value and *increase* resistance to compromise.[13] This outcome is the "backfire effect," an obstacle to the resolution of conflict based on sacred values.

Under conditions perceived as threatening, high fusion with a group combined with strong adherence to a sacred value predicts the greatest endorsement of, and willingness to take, pro-group action.[14] Fusion with a group and adherence to sacred values each predict increases in willingness to act, but the greatest willingness to make costly sacrifices occurs as a result of their interaction,[15] specifically when threat is perceived toward the group or the survival of the value or both.[16] Threat may be implicit in a sample of fused participants from conflict zones or explicitly manipulated under experimental conditions. The interaction between these three variables—fusion, sacredness, and threat—forms the core of the devoted actor model.

Role of a Value

Although commitment to a sacred value appears to demonstrate predictive capacity in the model of the devoted actor, the significance of its role remains unresolved throughout the literature. In some instances, a variety of social, economic, and psychological "push" factors are thought to predict enlistment to foreign extremist groups. Under this interpretation, marginalized and frustrated individuals are pushed toward the decision because of a lack of other opportunities.[17] Notably, familiar conceptions of leadership structures are often imposed on the analysis of terrorist groups ("command and control," "brainwashing," etc.). Despite some infamous leaders who retain control and demand formal vows of adherence from members (a notable example in recent years is the deceased Osama Bin Laden), enlistment is most often of one's own accord, and strategic planning typically distributed, rather than centralized (as in a soccer team).[18]

The predictive capacity of push factors is limited. For example, in a series of interviews with foreign fighters in Syria, reported motivations were provided almost exclusively within an ideological frame. The authors of this study claim that, "the interactions with these individuals were so heavily mediated by religious discourse it seems implausible to suggest that religiosity (i.e., a sincere religious commitment, no matter how ill-informed or unorthodox) is not a primary motivator for their actions."[19]

A debatable aspect of the devoted actor model is the extent to which adherence to a value contributes to outcomes. Whitehouse, in his examination of identity fusion and sacrifice, argues that willingness to fight and die for a group is best predicted by factors associated with group binding and identify fusion, while negating any considerable role of ideology.[20] He argues that the measurement of sacred values is not independent of the measurement of willingness to act, and that the "aura of sacredness" attached to some values may be a consequence of their link to the group, rather than of adherence to explicit belief systems.[21] Atran and Gómez, however, provide a comprehensive reply.[22] The primary empirical method of determining sacredness is an individual's opposition to trading a value for material gain,[23] distinct from measures of costly sacrifice including suffering and death.[24] In some studies, identity fusion does provide greater predictive capacity than commitment to values, and consistent with the assertions of Whitehouse, group factors can prove more important than ideology even when action is taken in the name of a value.[25] But some results support the contrary. When forced to choose between their fused group and their sacred values, those who express the greatest willingness to act appear to be those most likely to forsake their group in favor of the value.[26] Atran and Gómez state that "a general theory of extreme self-sacrifice should consider, at a minimum, that people can make extreme sacrifices for a group, but also, or even independently, for a cherished cause." The assertions of Whitehouse are based on compelling evidence, but not all available evidence. A wider scope reveals greater complexity.[27]

The absence of an ideological focus in a model of costly sacrifice raises a more rudimentary issue. The mobilization of groups and their individual members, no matter how fused, does not very often occur randomly; it must logically depend on something. In conceiving Whitehouse's "aura of sacredness" hypothesis—values may take on the quality of sacredness when linked to the group but not as a direct result of explicit belief systems—we consider the only example for which this is the only possibility: the existence of the group itself being considered a sacred value by its members. In this instance, the sacred value necessarily arises as a direct result of group factors. Members will be expected to mobilize for the protection of the group in the face of a direct threat, a defensive response unconnected to the inherently "irrational" actions of the devoted actor. Willingness to act in ways separate from rationally calculated risks and rewards

(the focus of both Whitehouse and Atran) is not sufficiently predicted by an "aura of sacredness" alone—the group must be considered a value distinct from economic and material considerations. Even in this instance, there remains an explicit ideological underpinning. The role of values and beliefs in the manifestation of extreme action and costly sacrifice underpins our exploration of their moderation.

Community of Knowledge and the Mechanistic Task

A perception of our personal understanding has a great impact on the decisions we make every day.[28] Relevant findings from persuasion theory—specifically, the self-validation theory of persuasion[29]—supports the role of confidence in the likelihood of successful moderation to one's attitudes and beliefs. To established models of the likelihood of successful persuasion, self-validation theory includes the role of meta-cognitive processes, that is, what people think about their thoughts.[30] According to this framework, judgments regarding likelihood (expectancy) and desirability (value) linked to an attitude are not sufficient to predict the effectiveness of a persuasive message. Instead, the impact of these judgments on a person's evaluation depends on the certainty with which the judgments are held.

The tendency for human beings to feel that they understand things in greater detail than they really do is known as the "illusion of explanatory depth" or "the knowledge illusion."[31] An overconfidence in our knowledge is explained by limited capacity to distinguish the information in our own heads from that held by those around us, our "community of knowledge."[32] For example, US participants rate their personal understanding of novel scientific phenomena as significantly higher when they're told that scientists understand them, without actually accessing the knowledge.[33] This bias appears similar to that of the false consensus effect but differs in an important way. The false-consensus effect refers to the tendency of people to overestimate the extent to which their personal values, opinions, and beliefs are "normal" and shared by other people.[34] In the case of a knowledge community, members of the in-group likely do share adherence to a core value or set of values. The bias in this case refers not to a perception that people in general share this belief but to an overconfidence of personal understanding or knowledge regarding its explanation. This notion of a knowledge community underpinning perceptions of personal understanding (in lieu of individual comprehension) is reflected in discussion of the dynamics of extremist groups. Though he does not use the term "knowledge community," Atran states, "It usually suffices that one or a few of these action buddies come to believe in the cause, truly and uncompromisingly, and for the rest to follow even unto death."[35]

Being asked to give a mechanistic explanation—a step-by-step, causal explanation of a phenomenon, from start to finish, with no gaps—makes people aware of the gaps in their knowledge. This effect has been demonstrated as a robust way to challenge the illusion for knowledge of various objects and phenomena.[36] Participants are first asked to read detailed instructions about the rating of understanding for various phenomena (e.g., "How well do you understand how a key lock works?"), with example responses provided for different grades on the seven-point scale. After rating their understanding of various phenomena, participants are asked to demonstrate their reported level of knowledge by completing the mechanistic task. Understanding is then reported a second time. Ratings at time two tend to be significantly lower than at time one, signifying a successful confrontation of the illusion.[37]

The backfire effect, however—previously discussed as an impediment to the resolution of conflict when based on sacred values[38]—occurs also in the context of belief. That is, the presentation of conflicting information may reinforce adherence to the original belief rather than

undermining it.[39] Results supporting this effect have failed to replicate in some recent studies, with participants demonstrating a willingness to correct erroneous views in the light of new information. Rather than an inability for the average individual to heed any factual information that opposes belief adherence, a more nuanced view of this construct predicts backfire only in instances where one's self-identity, self-concept, or ideological world view is threatened.[40] For example, the extent to which participants self-identify as "gamers" predicts the likelihood that research on the negative effects of gaming will result in criticism and anger.[41]

The most intuitively sensible tactic for contesting ideological certainty, the sharing of information, may be a dangerous approach with the potential to exacerbate conflict. Concepts of identity and worldview bound in our target values may be the greatest obstacle in belief moderation. Thus, we might expect the mechanistic task to produce backfire for the devoted believer. But the success of the task extends beyond everyday phenomena. It has been successful in undermining polarization for Americans with extreme political attitudes regarding complex policy (e.g., "How well do you understand the impact of imposing unilateral sanctions on Iran for its nuclear program?").[42] Though this finding would appear to contradict conclusions related to the phenomenon of backfire, as well as long-standing findings that demonstrate that being asked to justify a position results in more extreme attitudes,[43] the nature of the explanation is critical. Attempts to replicate the results of political polarization with participants enumerating reasons for their policy preferences, rather than generating causal explanations, did not work to challenge the illusion.[44] Reasons can be based on principles and values, and supportive information can be selectively retrieved. In contrast, being asked to explain the workings of a policy (or other phenomenon) requires confrontation with one's lack of understanding. Additionally, because the challenge does not arise from an out-group or external threat, it may be that this task demonstrates a process with the unique capacity to circumvent the backfire effect.

Likely perpetuated by the taboo associated with contesting personal values, the back-and-forth enumeration of reasons for rigid positions is often the extent of discussion in real-world conflict situations. For an individual who holds a sacred value, it is typically deemed taboo or inappropriate to raise questions or concerns about its content. Giving reasons for our positions is at once personally satisfying and ostensibly adequate, driving an infinite cycle of confirmation of our existing positions. Rather than an expectation that reasons for rigid positions be enumerated, fostering meaningful dialogue between disputing parties may be more productive if conventional dialogue based on positions and preferences is complemented by mechanistic discussion.[45]

Demand for an explanation of sacred views, however, particularly from an individual or group perceived as an adversary, is likely to backfire.[46] In negotiations between two conflicting parties, where each party perceives the issue at hand as sacred, Atran and colleagues demonstrate that symbolic gestures presented with sincerity (including apologies, or recognition of the values of the adversarial group, including their right to exist) may unlock the potential for intergroup dialogue in instances where material incentives backfire.[47] For example, Israeli settlers report greater approval of making compromises regarding sacred land on the condition that relevant Palestinian groups make a sincere symbolic recognition of Israel.[48] Any expression of symbolic recognition should be expressed with sincerity. Insincerity in symbolic connection risks backfiring.[49]

Consistent with the notion that our judgments and behaviors are impacted by a perception of our personal understanding,[50] completion of the task has reduced donations to groups advocating in favor of their initial positions.[51] This outcome provides early empirical support for a causal link between mechanistic engagement of beliefs and moderation of willingness to act for them.

The task is not expected to abolish adherence to a core belief or eliminate willingness to defend it. But for those who adhere to a value with an unyielding, potentially alarming rigidity, this may be a way to "take the edge off," to begin unsettling the absolute and unquantifiable nature of the value with a seed of complexity. For matters of extremism, "the edge" may be substantial.

Preliminary Results

Results are based on samples recruited from the online survey platform Prolific, which is based in the United Kingdom. More than 70 percent of participants are white and speak English as their first language.[52] In each study, gender has been divided approximately equally, with mean age approximately 30–35 years.

Overview

Study 1: The likelihood that theists will espouse a supernatural response to a scientific question posed in the context of a scientific study is predicted by an interaction between fusion and threat—a combination of high fusion and high threat scores predicts the greatest probability of a pro-group (supernatural) response.

Study 2: A three-way interaction between fusion, threat, and group centrality scores (i.e., the importance or salience of the specific question item to one's religious community) predicts belief rigidity. A combination of high fusion, high threat, and high centrality predict the greatest rigidity of beliefs, as hypothesized, demonstrating increases in perceived understanding consistent with the backfire effect. Surprisingly, a combination of high fusion, high threat, and low centrality predict the greatest decreases in perceived understanding as a result of the task.

Study 3**:** Study 2 is replicated with three changes: pro-democracy values are used as target content (rather than religious beliefs); the dependent variable of perceived understanding is replaced with strength of adherence to pro-democracy values; and group centrality in the three-way interaction is replaced by a perception of sacredness (consistent with the devoted actor model). The interaction between fusion, threat, and sacredness is a significant predictor of changes to adherence scores as a result of completing the task, as hypothesized. Consistent with Study 2, a combination of high fusion, high threat, and a perception that pro-democracy values are not sacred predicts the greatest decreases in perceived understanding as a result of the task.

Measures

Identity fusion with a religious community (studies one and two) and a pro-democratic society (Study 3) was measured using the verbal fusion scale (a continuous measure),[53] as opposed to the binary pictorial scale.[54] Using samples expected to be less extreme in their responses than those representative of populations with experiences relevant to the framework, the continuous measure was able to capture nuance in responses. For the devoted actor, fusion with a group is fundamental. That is, the investigation of moderators, such as perceived threat, makes little sense at fusion scores equivalent to zero (no evidence of fusion). Figures 1–3 demonstrate the interaction at the most meaningful values of fusion (i.e., mean scores and above).

In the first of three studies, discussed in the following sections, item-specific measures of threat and group centrality are created to allow for distinct responses to each of the questions asked of theists (universe item and consciousness item) in studies one and two. Group centrality reflects the salience of a particular value to the group and its members—it was included as a potential confound in Study 1, and a moderator of the two-way interaction between fusion and

threat in Study 2. In the first two studies, sacredness is measured by a series of decisions about willingness to make value-relevant sacrifices for money.[55] In Study 3, using the value of democracy (rather than specific doctrine related to the overall value of religiosity) established more realistic ties to the model of the devoted actor. Baseline threat perception was measured by extent of agreement with the statement, *There are groups/organizations that are a threat to my pro-democratic beliefs*, and the hypothetical threat of a police state was imposed for the duration of the study. A perception of sacredness was determined by willingness to sacrifice adherence to pro-democracy values under threat (a binary measure). Detailed output for all studies is available in the Appendix.

Initial Investigation

This project began with the intent to identify the factors responsible for the unique rigidity of transcendent or intangible beliefs—compared to those for which explanations rely on observable, falsifiable, or material explanations. Intangible beliefs were operationalized through supernatural explanations, compared to secular explanations, for the same phenomena. We were interested in predicting the likelihood of a supernatural response to scientific questions posed to participants in the context of a scientific study (*How did the universe begin?; What happens to our experience of consciousness after death?*)—an environment in which a supernatural response would not necessarily be typical. Consistent with expectations, supernatural responses were associated with greater belief rigidity for theists and could not be accounted for by higher religiosity scores.

Study 1

To test the hypothesis that greater belief rigidity associated with supernatural responses may have been a product of greater fusion and threat scores (rather than a result of intangibility), the interaction between fusion with a religious community and perceived threat to the specific belief from scientific imposition was regressed on the probability of a supernatural response (n = 135; Figure 1).[56] For those reporting greater fusion, the likelihood of a supernatural response increased more sharply as a perception of threat increased (controlling for religiosity scores, sacredness scores, and centrality of the specific item to one's religious community);
$F(1, 512) = 3.949$,OR = 1.311, $\eta^2 p = .008$, p=.047.

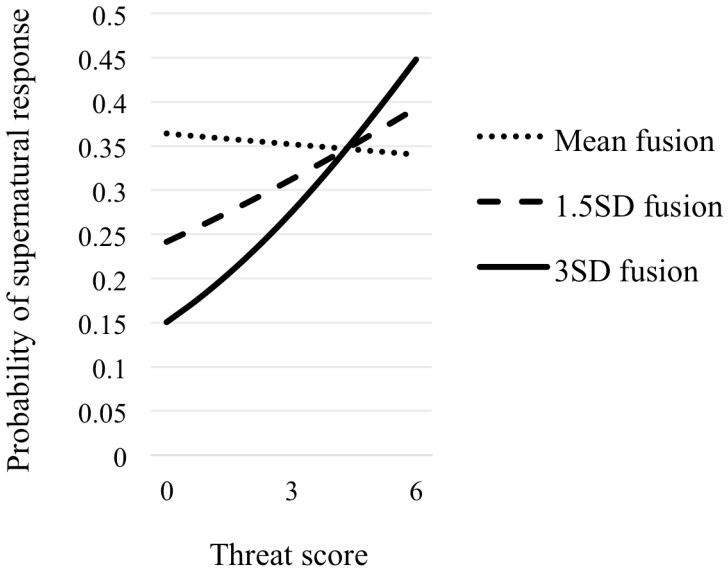

Figure 1. Estimated means for the probability of a supernatural response by fusion and perceived threat, controlling for religiosity, sacredness, and group centrality scores

Across the literature, reductions in reported understanding following the mechanistic task are associated with modest effect sizes. Consistent with the findings of previous studies, specifically Fernbach's use of the mechanistic task to moderate extreme political attitudes ($\eta 2p$ = .15),[57] we did not expect effect sizes in the medium to large range. But this effect was weak, approaching the benchmark for a small effect (0.01).[58]

The results of this study supported our hypothesis that fusion and threat were significant in predicting supernatural responses for theists in the context of a scientific study. Rather than supernatural responses representing intangible responses, we considered that a supernatural response in this context was an expression of support for the relevant group (a religious community) and overall value (religiosity). In studies two and three, effect sizes align with expectations.

Study 2

Replacing the binary dependent variable of response type (designed initially to test for differences by intangibility) with a continuous measure of belief rigidity (post-task rating of perceived understanding minus pre-task rating), we tested the hypothesis that fusion and threat were predictive of greater belief rigidity.

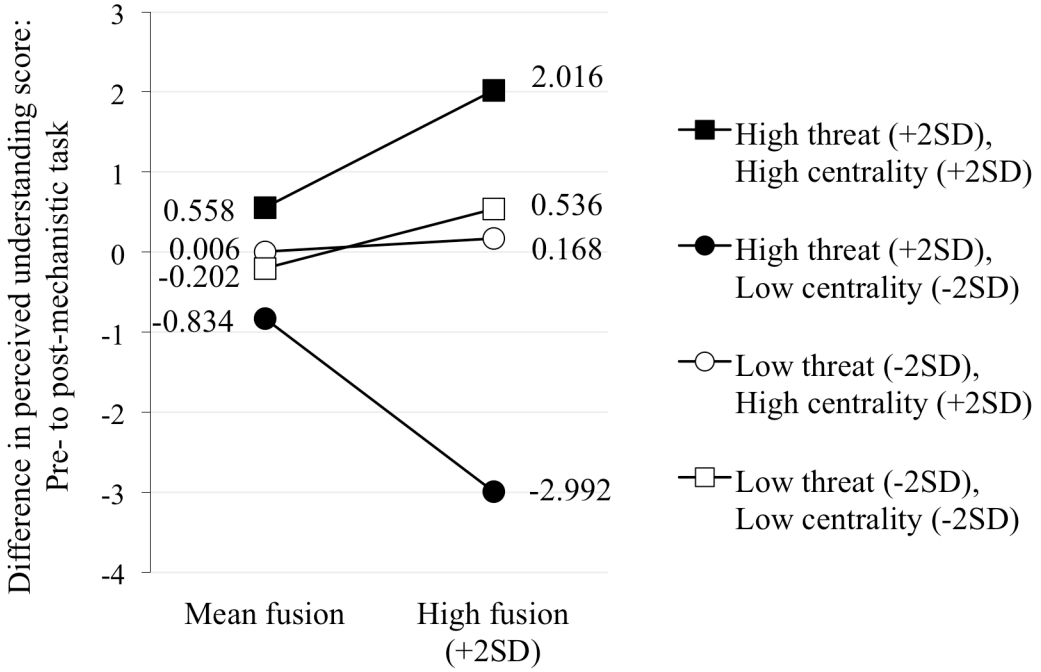

Figure 2. Difference scores predicted by a three-way interaction between identity fusion, perceived threat, and centrality to the group; controlling for religiosity and sacredness, and response type (supernatural or secular)

Theists (n = 185) were required to complete mechanistic explanations for the questions from Study 1.[59] Consistent with expectations, an interaction between fusion and threat scores was a significant predictor of belief rigidity, moderated by a perception of the specific belief as central to one's religious community (i.e., a three-way interaction); $F(1, 359) = 4.314$, $\eta^2 p = .012$, $p = .039$. A combination of high fusion, high threat perception, and high centrality to the group was hypothesized to result in the greatest resilience of beliefs, demonstrated by minimal changes in perceived threat as a result of attempting a mechanistic explanation (i.e., change scores relatively close to zero). This combination of variables (high/high/high) did predict the "least negative" scores, consistent with hypotheses. Increases in perceived understanding, however, were unanticipated. Not only did this result reflect greater rigidity of beliefs but it was consistent with the phenomenon of backfire[60]—to our knowledge, never before recorded as a result of the task. Overall, a perception of low threat (white markers in Figure 2) predicts relatively minor changes as a function of fusion scores, regardless of centrality. In contrast, when threat is high (black markers), centrality predicts differences at mean fusion (high centrality predicting positive scores

and vice versa). As fusion increases, the impact of centrality is exaggerated when threat is high. That is, a two-way interaction between fusion and centrality predicts strongest effects at high levels of threat perception.

Study 3

Overcoming limitations associated with the use of supernatural belief to explore the mediation of interest (completion of the mechanistic task moderates value strength, and value strength moderates willingness to act in the name of the value), pro-democracy values for participants in democratic societies were used as target content (i.e., pre- and post-mechanistic task ratings regard strength of adherence to values rather than perception of understanding of specific phenomena). Participants (n = 294) imagined themselves in a hypothetical threat scenario, responding to measures from this perspective. We developed two core hypotheses: (1) the greatest increases in pro-democracy value strength as a result of the task (consistent with the phenomenon of backfire) will be predicted by a combination of high identity fusion and high perceived threat for values perceived as sacred, and (2) change in pro-democracy value strength (predicted in Hypothesis 1) will contribute significantly to the prediction of willingness to fight and die, controlling for the three-way interaction between fusion, threat, and sacredness—that is, greater change scores (indicating an increase in value strength) were expected to predict greater willingness to act. In combination, these results would support a mediative effect.

Hypothesis 1 was assessed by a linear regression analysis, predicting difference in pro-democracy value adherence as a result of completing the mechanistic task. As hypothesized, the analysis revealed a significant interaction between fusion, threat, and sacredness (Figure 3); $t(1, 282) = 2.007$, $B = .247$, $\eta^2 p = .014$, $p = .046$. But the results demonstrated greater complexity than hypothesized. In the third paper derived from this thesis, we discuss differences in the results of this study (predicting differences in value adherence post-task) compared to the previous study (predicting differences in perceived understanding post-task), including limitations and potential confounds.

The results for a combination of high fusion/high threat/not sacred—substantial decreases in adherence predicted as a result of the task—are strikingly similar to high fusion/high threat/low centrality in the previous study (illustrated in Figure 2). The replication of this result suggests a somewhat counterintuitive conclusion; that is, the successful moderation of belief for highly fused persons being most likely in the presence of threat. This conclusion appears to run counter to replicated and cross-cultural findings that show complete fusion in high threat situations leads to maximum willingness to self-sacrifice (including fighting and dying on the battlefield).[61]

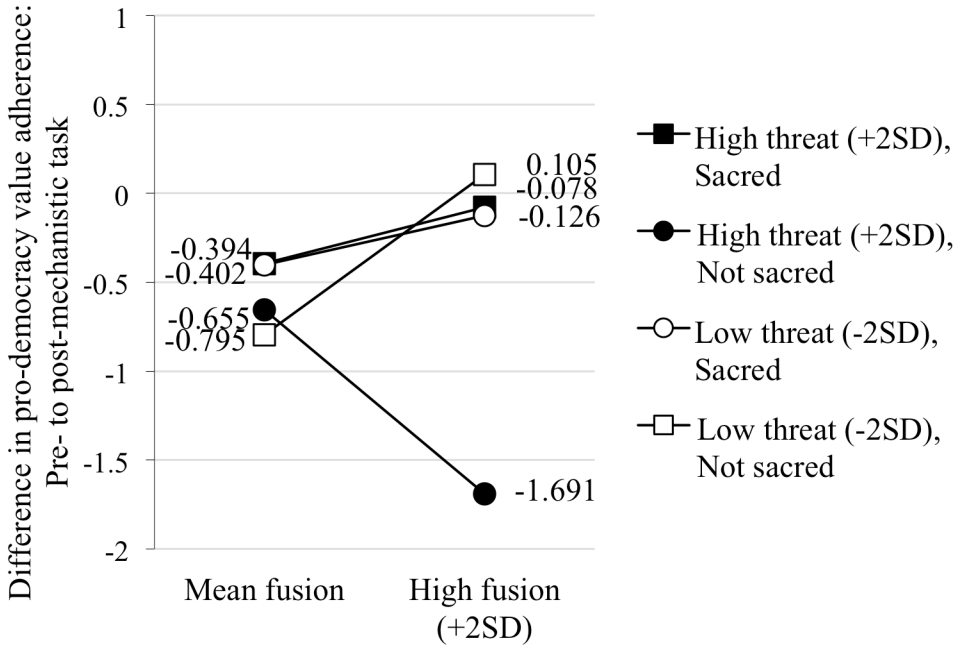

Figure 3. Difference scores predicted by a three-way interaction between identity fusion, perceived threat, and a perception of sacredness; accounting for allocation to item group (*participants were allocated to respond to one of five specific items relevant to their pro-democracy values in the mechanistic task; analysis of groups is available in the complete manuscript*)

Adherence change scores predicted by the analysis outlined earlier were entered as a predictor in a subsequent analysis predicting reported willingness to fight and die for democracy (Hypothesis 2). As hypothesized, change in belief strength demonstrated significant predictive capacity (i.e., increases in belief strength post-task predict increases in subsequent reports of willingness to fight and die for the value), providing evidence in support of mediation; $t(1, 285) = 2.036$, $B = .136$, $\eta^2 p = .014$, $p = .043$.

Discussion

We speculate that a perception of threat may increase demand for high levels of genuine engagement in the task. In the absence of group centrality or personal sacredness (i.e., unlikely to trigger backfire), a highly engaged respondent may be most susceptible to the effects of the task. Though this account is speculative, it is supported by the elaboration likelihood model (ELM) of persuasion.[62] The ELM distinguishes two routes by which variables can affect attitudes: thoughtful persuasion (termed the "central route") and low-thought persuasion (the "peripheral route"). A key foundation of ELM research is that greater motivation and ability to think about potentially persuasive information predicts greater influence of one's own assessment of its validity. In contrast, reactions to simple cues in the environment are predictive of attitudes for those who are relatively less able or unmotivated to engage in thinking.[63] This distinction is an early example of a familiar framework known today as dual process or dual system theories of

reasoning in which slow, thoughtful, and deliberative judgments (type 2) are thought to rely on cognitive processes distinct from those responsible for fast, "automatic," or "snap" judgments (type 1).[64] In the absence of automatic pro-group responses associated with a rigid perception of sacredness, the combination of high fusion and high threat may demand cognitive engagement consistent with the notion of type 2 processing.

Though alignment of the current results with theories of persuasion and reasoning processes requires further investigation, support for the speculation is provided by recent behavioral and neuroimaging studies that directly engage the nondeliberative aspect of sacred values in the devoted actor's willingness to sacrifice. As demonstrated via fMRI, brain regions previously associated with the calculation of risk and cost show diminished activity when expressing willingness to fight and die for sacred values compared to nonsacred ones.[65] These results provide evidence that devoted actors' commitment to defend sacred values despite instrumental "irrationality" relies on discernible neurocognitive processes. Further evidence from the ISIS battlefield, and with respect to democracy in Spain, shows that a combination of sacred values, fusion, and threat maximize willingness to self-sacrifice (confirmed, in part, with actually casualty counts), but sacredness of values was the most important predictor (trumping identity fusion in a forced-choice paradigm).[66] In the absence of sacredness, a highly engaged group member, under threat, may be more susceptible to deliberative reasoning involving defence of their values and behaviours on behalf of those values.

Future Directions

Preliminary evidence suggests that the rigidity with which beliefs and values are adhered to may be a viable target for intervention in the willingness of human beings to sacrifice themselves willingly in incalculable ways, as predicted by the model of the devoted actor. Replication of a curiously counterintuitive result suggests that successful moderation by means of mechanistic engagement may be most likely for those who are most highly fused and most highly threatened. In many ways, this conclusion is unexpectedly promising—two of three factors core to the making of a devoted actor may also be core to the susceptibility of rigid value adherence. The combination of these variables, however, appears to be most likely to predict backfire when a value holds high centrality for the relevant group or is considered sacred by an individual. In attempts to moderate rigid ideas—moderating in turn willingness to act to protect them—centrality and sacredness would appear to hold the greatest influence over the result (from successful challenge to the illusion of understanding, to backfire).

One of these variables appears more flexible than the other. Though a perception of sacredness is relatively impervious to manipulation,[67] the salience of specific values or doctrine can shift in response to the present needs of the group.[68] The correlation between group centrality and personal sacredness in the current studies was significant but relatively low, indicating independent properties. Thus, the capacity for group centrality to moderate the traditional three-way interaction should be explored. But the correlation between centrality and sacredness was a result of the perception of specific items (universe and consciousness) as central to one's religious group or community and sacredness of the overall value (religiosity). For a group with which one experiences extended fusion (bonds projected onto a large collective of members that may be global, with a basis not dependent on personal relationships) rather than local fusion (one has personal ties to a relatively small group),[69] the collective may be defined by adherence to a single value. In this instance, the predictors of centrality and sacredness may lack independence.

We must also consider the possibility that sensitivity to a failure of mechanistic reasoning will depend to some extent on cultural factors. At first, the nature of the task would seem to lend itself to an individualistic mentality. For instance, it seems reasonable that a perception of personal understanding might extend a lesser influence where collectivism is key, or where authority is deemed a sufficient basis for a belief. But the illusion of personal understanding, targeted by a failure to demonstrate knowledge, is based on sensitivity to a knowledge community. We know that, even for groups who are not fused, the perception of knowledge held by some members can directly influence the perception of understanding and confidence for other individuals in a group without changing the information to which they are exposed.[70] Specifically, a perception of the insight held by influential members (like scientists in the example of scientific knowledge) can be powerful. With groups at the heart of the framework, impacting the rigidity of belief may be possible even without reaching all adherents individually.

We know that internal cognitive processes can be affected by culture-specific content and representations, though much remains to be done in efforts to tease apart universal aspects of cognition from those that are culturally dependent.[71] Cognitive domains currently demonstrated to differ as a function of cultural background range from basic visual and spatial perception to economic decision-making, and even a conception of self.[72] Differences in causal reasoning are typically based on participants' appraisals of causality for a range of fictional scenarios.[73] Holding constant an outcome (e.g., a window is broken), Le Guen and colleagues manipulate whether the action taken by an agent right before the outcome occurs is directly related to its occurrence (kicks the ball in the direction of the window versus tries to kick the ball but misses), and whether the outcome was intended (aimed to destroy the window versus no intention). The study's "non-western" participants (two groups of indigenous Mayans, traditional and rural, with subsistence economies), demonstrate minor deviations from typical university samples. Action to outcome—the presence of an action (kicks the ball in the direction of the house) linked directly to the outcome (window breaks)—was not the only predictor of causal attribution for Tseltal Mayans. Mayan participants attributed causality in some instances based also on links between an intention and an outcome, in the absence of direct action. This response is characteristic of "magical thinking." Yucatec Mayans demonstrated some evidence of magical thinking and were the only group to describe fate as a suitable explanation in several scenarios.[74]

Despite greater attention paid to additional features for some participants in some instances, however, the greatest predictor of causal attribution for *all* groups was the relationship between action and outcome. That is, "people from very different cultural backgrounds base their causal attributions on more or less the same 'mechanistic' principle."[75] Our current studies utilise supernatural beliefs as target values (clear examples of magical thinking in the absence of perceptible causes). Though it is possible that our current samples are those most likely to engage with a causal perspective of transient values, consistent with culturally bound models of reason, these findings demonstrate a likelihood that the capacity for mechanistic engagement to challenge the illusion of explanatory depth is not constrained significantly by culture.

The preliminary results outlined in this paper have laid the groundwork for further research into the mediative effect of belief rigidity on action. Thus far, results are based on online populations of predominantly WEIRD (western, educated, and from industrialized, rich, democratic nations) participants who are typically unacquainted with the conflict that might underpin the willingness of a human being to give their life in the name of a group and a cause.[76] The investigation of mechanistic reasoning and its impacts on belief resilience must of course be tested in diverse samples, and regarding values that reinforce opposition and conflict on the

ground. However, it is with ecologically valid studies of intractable conflict, both on the ground and including behavioural and neuroimaging studies that directly engage the devoted actor model, that the current findings align, and from which we have drawn an explanation of the results in context.[77]

Results thus far have provided support for an emerging theory regarding the capacity for belief rigidity to mediate the relationship between core predictors of costly action and willingness to carry it out. Attempting to combat violence motivated by factors separated from instrumental rationality is complex. Given the significance of ideological factors, the capacity to understand and moderate extreme and costly action at the level of belief adherence could be a powerful breakthrough in the peaceful resolution of enduring conflict.

Appendix

Related Output: Study 1

Table A. Binomial logistic regression predicting a supernatural response from religiosity, sacredness, fusion, threat, and centrality

Source	Df_{Source}	F	OR	η^2p	*p*
Corrected model	7	**18.121****	-	.199	<.001
Religiosity	1	**44.267****	3.177	.080	<.001
Sacredness	1	.984	1.133	.002	.322
Fusion	1	.664	.887	.001	.416
Threat	1	.140	.950	<.001	.708
Centrality	1	**26.972****	2.130	.050	<.001
Fusion*threat	1	**3.949***	1.311	.008	.047
Fusion*centrality	1	1.347	1.194	.003	.246

*p<.05; **p<.001

Related Output: Study 2

Table 1. Generalized linear mixed model predicting difference in perceived understanding score (pre-task to post-task) by identity fusion, perceived threat, and centrality to the group; controlling for religiosity, sacredness, and response type

Source	Df_{Source}	F	η^2p	*p*
Corrected model	10	**2.642***	.069	.004
Response type	1	.347	.001	.556
Religiosity	1	1.121	.003	.290
Sacredness	1	**7.243***	.020	.007

Fusion	1	.064	.000	.800
Threat	1	.011	.000	.915
Centrality	1	**4.901***	.014	.027
Fusion*threat	1	1.289	.004	.257
Fusion*centrality	1	**5.253***	.014	.022
Threat*centrality	1	1.108	.003	.293
Fusion*threat*centrality	1	**4.314***	.012	.039

*p<.05; **p<.001

Related Output: Study 3

Table 2. Linear regression predicting difference in pro-democracy adherence (pre-task to post-task) from identity fusion, perceived threat, and a perception of sacredness; accounting for allocation to item group

Source	Df_{Source}	*B*	*t*	$\eta^2 p$	*p*
Fusion	1	-.034	-.352	<.001	.793
Threat	1	.035	.358	<.001	.720
Sacredness	1	.327	**2.559***	.023	.011
Sacred*fusion	1	.182	1.390	.006	.189
Sacred*threat	1	-.033	-.254	<.001	.800
Fusion*threat	1	-.242	**-2.730***	.026	.007
Sacred*fusion*threat	1	.247	**2.007***	.014	.046
Item Group	4	-	-	.059	.002
1. Reasons		-	-	-	-
2. Democratic function		-.259	-1.303	.006	.193
3. Police state function		.526	**2.748***	.026	.006
4. Rationale for violence		.232	1.179	.005	.239
5. Success of action		.227	1.180	.005	.239

*p<.05; **p<.001

Notes

[1] Gary S. Becker, *The Economic Approach to Human Behavior* (Chicago: University of Chicago Press, 1976).
[2] Jeremy Ginges, "Deterring the Terrorist: A Psychological Evaluation of Different Strategies for Deterring Terrorism," *Terrorism and Political Violence* 9, no. 1 (1997): 170–185; Scott Atran, Douglas L. Medin, and Norbert O. Ross, "The Cultural Mind: Environmental Decision Making and Cultural Modeling within and across Populations," *Psychological Review* 112, no. 4 (2005): 744–776.
[3] Scott Atran, Robert Axelrod, and Richard Davis, "Sacred Barriers to Conflict Resolution," *Science* 317, no. 5841 (2007): 1039–1040; Scott Atran, "The Devoted Actor: Unconditional Commitment and Intractable Conflict across Cultures," *Current Anthropology* 57 (2016): S192–S203.

[4] Hammad Sheikh, Jeremy Ginges, and Scott Atran, "Sacred Values in the Israeli-Palestinian Conflict: Resistance to Social Influence, Temporal Discounting, and Exit Strategies," *Annals of the New York Academy of Sciences* 1299 (2013): 11–24; Harvey Whitehouse et al., "Brothers in Arms: Libyan Revolutionaries Bond Like Family," *Proceedings of the National Academy of Sciences* 111, no. 50 (1416): 17783–17785; Atran, "Devoted Actor."
[5] Ecological validity is the extent to which the results of a research study can be generalized to real-life settings.
[6] William B. Swann et al., "When Group Membership Gets Personal: A Theory of Identity Fusion," *Psychological Review* 119, no. 3 (2012): 441–456.
[7] Henri Tajfel and John C. Turner, "The Social Identity Theory of Intergroup Behaviour," in *Psychology of Intergroup Relations*, ed. S. Worchel and W. G. Austin (Chicago, IL: Nelson-Hall, 1986), 7–24.
[8] William B. Swann et al., "What Makes a Group Worth Dying For? Identity Fusion Fosters Perception of Familial Ties, Promoting Self-Sacrifice," *Journal of Personality and Social Psychology* 106, no. 6 (2014): 912–926; Angel Gómez et al., "On the Nature of Identity Fusion: Insights into the Construct and a New Measure," *Journal of Personality and Social Psychology* 100, no. 5 (2011): 918–933; Angel Gómez et al., "Rejected and Excluded Forevermore, but Even More Devoted: Irrevocable Ostracism Intensifies Loyalty to the Group among Identity-Fused Persons," *Personality and Social Psychology Bulletin* 37, no. 12 (2011): 1574–1586.
[9] Whitehouse et al., "Brothers in Arms"; Scott Atran, Hammad Sheikh, and Angel Gómez, "Devoted Actors Sacrifice for Close Comrades and Sacred Cause," *Proceedings of the National Academy of Sciences of the United States of America* 111, no. 50 (2014): 17702–17703.
[10] Jeremy Ginges et al., "Sacred Bounds on Rational Resolution of Violent Political Conflict," *Proceedings of the National Academy of Sciences* 104, no. 18 (2007) 7357–7360; Philip E. Tetlock, "Thinking the Unthinkable: Sacred Values and Taboo Cognitions," *Trends in Cognitive Sciences* 7 (2003): 320–324.
[11] Morteza Dehghani et al., "Sacred Values and Conflict over Iran's Nuclear Program," *Judgment and Decision Making* 5, no. 7 (2010): 540–546.
[12] Tetlock, "Thinking the Unthinkable"; Jonathan Baron and Mark Spranca, "Protected Values," *Organizational Behavior and Human Decision Processes* 70, no. 1 (1997): 1–16.
[13] Scott Atran and Jeremy Ginges, "Religious and Sacred Imperatives in Human Conflict," *Science*, 336, no. 6083 (2012): 855–857; Brendan Nyhan and Jason Reifler, "When Corrections Fail: The Persistence of Political Misperceptions," *Political Behavior* 32, no. 2 (2010): 303–330.
[14] Atran, "Devoted Actor."
[15] Atran, Sheikh, and Gómez, "Devoted Actors Sacrifice"; Hammad Sheikh, Angel Gómez, and Scott Atran, "Empirical Evidence for the Devoted Actor Model," *Current Anthropology* 57 (2016): S204–S209.
[16] Angel Gómez et al., "The Devoted Actor's Will to Fight and the Spiritual Dimension of Human Conflict," *Nature Human Behaviour* 1, no. 9 (2017): 673–679; Atran, "Devoted Actor."
[17] Daan Weggemans, Edwin Bakker, and Peter Grol, "Who Are They and Why Do They Go? The Radicalisation and Preparatory Processes of Dutch Jihadist Foreign Fighters," *Perspectives on Terrorism* 8, no. 4 (2014): 100–110.
[18] Atran, "Devoted Actor"; Scott Atran, *Talking to the Enemy: Faith, Brotherhood, and the (Un)Making of Terrorists* (New York: Ecco Press, 2010).
[19] Lorne L. Dawson and Amarnath Amarasingam, "Talking to Foreign Fighters: Insights into the Motivations for Hijrah to Syria and Iraq," *Studies in Conflict and Terrorism* 40, no. 3 (2017): 191–210.
[20] Harvey Whitehouse and Jonathan A. Lanman, "The Ties That Bind Us: Ritual, Fusion, and Identification," *Current Anthropology* 55, no. 6 (2014): 1–23; Swann et al., "When Group Membership Gets Personal."
[21] Harvey Whitehouse, "Dying for the Group: Towards a General Theory of Extreme Self-Sacrifice," *Behavioral and Brain Sciences* 41 (2018): e192.
[22] Scott Atran and Angel Gómez, "What Motivates Devoted Actors to Extreme Sacrifice, Identity Fusion, or Sacred Values?," *Behavioral and Brain Sciences* 41 (2018): e193.
[23] Jeremy Ginges et al., "Psychology Out of the Laboratory: The Challenge of Violent Extremism," *American Psychologist* 66, no. 6 (2011): 507–519.
[24] Gómez et al., "Devoted Actor's Will to Fight."
[25] Angel Gómez et al., "Dying and Killing for a Group or for Values: Strategies to Avoid, Reduce, and/or Eradicate Extremist Group Behavior," *Anuario de Psicologia Juridica* 26, no. 1 (2016): 122–129; Atran, *Talking to the Enemy*.
[26] Atran and Ginges, "What Motivates Devoted Actors?"
[27] Ibid.

[28] Philip M. Fernbach et al., "Explanation Fiends and Foes: How Mechanistic Detail Determines Understanding and Preference," *Journal of Consumer Research* 39, no. 5 (2013): 1115–1131.
[29] Richard E Petty and Pablo Briñol, "Thought Confidence as a Determinant of Persuasion: The Self-Validation Hypothesis," *Journal of Personality and Social Psychology* 82, no. 5 (2002): 722–741; John T. Cacioppo and Richard E. Petty, "The Need for Cognition," *Journal of Personality and Social Psychology* 42, no. 1 (1982): 116–131; Richard E. Petty, Pablo Briñol, Zakary L. Tormala, and Duane T. Wegener, "The Role of Metacognition in Social Judgment," in *Social Psychology: Handbook of Basic Principles,* ed. A.W. Kruglanski and E. T. Higgins, 254–284 (New York: Guildford Press, 2007).
[30] Richard R. Petty and Pablo Briñol, "Attitude Change," in *Advanced Social Psychology: The State of the Science*, ed. Roy F. Baumeister and Eli J. Finkel (Oxford: Oxford University Press; 2010), 217–261.
[31] Leonid Rozenblit and Frank Keil, "The Misunderstood Limits of Folk Science: An Illusion of Explanatory Depth," *Cognitive Science* 26, no. 5 (2002): 521–562.
[32] Steven A. Sloman and Philip Fernbach, *The Knowledge Illusion: Why We Never Think Alone* (New York: Riverhead Books, 2017).
[33] Steven A Sloman and Nathaniel Rabb, "Your Understanding Is My Understanding: Evidence for a Community of Knowledge," *Psychological Science* 27, no. 11 (2016): 1451–1460.
[34] Lee Ross, David Greene, and Pamela House, "The 'False Consensus Effect': An Egocentric Bias in Social Perception and Attribution Processes," *Journal of Experimental Social Psychology* 13, no. 3 (1977): 279–301.
[35] Atran, "Devoted Actor."
[36] Rozenblit et al., "Misunderstood Limits of Folk Science"; Frank C. Keil, "Folkscience: Coarse Interpretations of a Complex Reality," *Trends in Cognitive Sciences* 7, no. 8 (2003): 368–373; Adam L. Alter, Daniel M. Oppenheimer, and Jeffrey C. Zemla, "Missing the Trees for the Forest: A Construal Level Account of the Illusion of Explanatory Depth," *Journal of Personality and Social Psychology* 99, no.3 (2010): 436-451.
[37] Rozenblit et al., "Misunderstood Limits of Folk Science."
[38] Fernbach et al., "Explanation Fiends and Foes"; Atran and Ginges, "Religious and Sacred Imperatives."
[39] Nyhan and Reifler, "When Corrections Fail"; Norbert Schwarz et al., "Metacognitive Experiences and the Intricacies of Setting People Straight: Implications for Debiasing and Public Information Campaigns," *Advances in Experimental Social Psychology* 39 (2007): 127–161.
[40] Dan M. Kahan et al., "Motivated Numeracy and Enlightened Self-Government," *Behavioural Public Policy* 1, no. 1 (2017): 54–86; Gale M. Sinatra and Viviane Seyranian, "Warm Change about Hot Topics: The Role of Motivation and Emotion in Attitude and Conceptual Change about Controversial Science Topics," in *Handbook of Educational Psychology*, ed. Lyn Corno and and Eric M. Anderman, 3rd ed., 245–256 (New York: Routledge, 2016); Gregory J. Trevors et al., "Identity and Epistemic Emotions During Knowledge Revision: A Potential Account for the Backfire Effect," *Discourse Processes* 53, nos. 5–6 (2016): 339–370.
[41] Peter Nauroth et al., "Gamers against Science: The Case of the Violent Video Games Debate," *European Journal of Social Psychology* 44, no. 2 (2014): 104–116; Peter Nauroth et al., "Social Identity Threat Motivates Science-Discrediting Online Comments," ed. Michel Botbol, *PLOS ONE* 10, no. 2 (2015): e0117476.
[42] Philip M. Fernbach et al., "Political Extremism Is Supported by an Illusion of Understanding," *Psychological Science* , 24, no. 6 (2013): 939–946.
[43] Edward R. Hirt and Keith D Markman, "Multiple Explanation: A Consider-an-Alternative Strategy for Debiasing Judgments," *Journal of Personality and Social Psychology* 69 (1995): 1069–1086.; Lee D. Ross, Mark R. Lepper, Fritz Strack, and Julia Steinmetz, "Social Explanation and Social Expectation: Effects of Real and Hypothetical Explanations on Subjective Likelihood," *Journal of Personality and Social Psychology* 35 (1977): 817–829.
[44] Fernbach et al., "Political Extremism."
[45] Ibid.
[46] Ibid., *Joshua D. Greene, Moral Tribes: Emotion, Reason and the Gap between Us and Them* (London: Penguin Press, 2013).
[47] Jeremy Ginges and Scott Atran, "What Motivates Participation in Violent Political Action: Selective Incentives or Parochial Altruism?," *Annals of the New York Academy of Sciences* 1167 (2009): 115–123; Scott Atran and Robert Axelrod, "Reframing Sacred Values," *Negotiation Journal (Harvard)* 24 (2008): 221–246, https://jeannicod.ccsd.cnrs.fr/ijn.
[48] Ginges et al., "Sacred Bounds."
[49] Atran, "Devoted Actor"; Atran and Axelrod, "Reframing Sacred Values."
[50] Fernbach et al., "Explanation Fiends and Foes."

[51] Ibid.
[52] "Explore Our Participant Pool Demographics," Prolific, accessed March 3, 2020, https://www.prolific.co/demographics.
[53] Gómez et al., "On the Nature of Identity Fusion."
[54] William B Swann et al., "Identity Fusion: The Interplay of Personal and Social Identities in Extreme Group Behavior," *Journal of Personality and Social Psychology* 96, no. 5 (2009): 995–1011.
[55] Jesse Graham, Jonathan Haidt, and Brian A. Nosek, "Liberals and Conservatives Rely on Different Sets of Moral Foundations," *Journal of Personality and Social Psychology* 96, no. 5 (2009): 1029–1046. The sacredness scale was adapted for use in these studies. See complete manuscript for details.
[56] Repeated observations within participant for item formed a naturally nested data structure which would violate the assumption of independence required for traditional regression analyses. Therefore, a generalised linear mixed model analysis was used. 22 of 540 individual responses excluded due to non-attempt; 518 responses included ($df_{error} = 512$).
[57] Fernbach et al., "Political Extremism."
[58] Jacob Cohen, *Statistical Power Analysis for the Behavioral Sciences*. (New York: Routledge, 1988).
[59] As discussed earlier, repeated observations within participant for item formed a naturally nested data structure that would violate the assumption of independence required for traditional regression analyses. Thus, a generalized linear mixed model analysis was used; 17 of 385 individual responses excluded because of nonattempt; 368 responses included ($df_{error} = 359$).
[60] Nyhan and Reifler, "When Corrections Fail."
[61] Gómez et al., "Devoted Actor's Will to Fight"; Whitehouse et al., "Brothers in Arms"; Swann et al., "When Group Membership Gets Personal."
[62] Richard E. Petty et al., "The Elaboration Likelihood Model of Persuasion," in *Communication and Persuasion* (New York: Springer, 1986), 1–24.
[63] Richard E. Petty and Duane T. Wegener, "Attitude Change: Multiple Roles for Persuasion Variables," in *The Handbook of Social Psychology*, ed. Daniel T. Gilbert, Susan T. Fiske, and Gardner Lindzey, 323–390 (New York: McGraw-Hill, 1998).
[64] Jonathan St B. T. Evans, "In Two Minds: Dual-Process Accounts of Reasoning," *Trends in Cognitive Sciences* 7, no. 10 (2003), 454–459; Keith E. Stanovich and Richard F. West, "Individual Differences in Reasoning: Implications for the Rationality Debate?," *Behavioral and Brain Sciences*, 23, no. 5 (2000): 645–665.
[65] Hamid et al., "Neuroimaging 'Will to Fight' for Sacred Values: An Empirical Case Study with Supporters of an Al Qaeda Associate," *Royal Society Open Science* 6, no. 6 (2019): 181585.
[66] Gómez et al., "Devoted Actor's Will to Fight."
[67] E.g. Sheikh, Ginges, and Atran, "Sacred Values in the Israeli-Palestinian Conflict"; Atran and Ginges, "Religious and Sacred Imperatives"; Atran and Gómez, "What Motivates Devoted Actors?," e193.
[68] E.g., Tetlock, "Thinking the Unthinkable: Sacred Values and Taboo Cognitions"; Scott Atran, "Genesis of Suicide Terrorism," *Science* 299, no. 5612 (2003): 1534–1539.
[69] Swann et al., "When Group Membership Gets Personal."
[70] Sloman and Rabb, "Your Understanding Is My Understanding."
[71] Andrea Bender and Sieghard Beller, "Cognition Is . . . Fundamentally Cultural," *Behavioral Sciences* 3, no. 1 (January 4, 2013): 42–54; Andrea Bender and Sieghard Beller, "Probing the Cultural Constitution of Causal Cognition: A Research Program," *Frontiers in Psychology* 7 (2016): art. 245.
[72] Ara Norenzayan and Steven J Heine, "Psychological Universals: What Are They and How Can We Know?" *Psychological Bulletin* 131, no. 5 (2005): 763–784; Joseph Henrich, Steven J. Heine, and Ara Norenzayan, "The Weirdest People in the World?," *Behavioral and Brain Sciences* 33, nos. 2–3 (2010): 61–83.
[73] Michael W. Morris and Kaiping Peng, "Culture and Cause: American and Chinese Attributions for Social and Physical Events," *Journal of Personality and Social Psychology* 67, no. 6 (1994): 949–971; Kaiping Peng and Eric D. Knowles, "Culture, Education, and the Attribution of Physical Causality," *Personality and Social Psychology Bulletin* 29, no. 10 (2003): 1272–1284.
[74] Olivier Le Guen et al., "Making Sense of (Exceptional) Causal Relations. A Cross-Cultural and Cross-Linguistic Study," *Frontiers in Psychology* 6, (2015): 1–16.
[75] Ibid.
[76] Henrich, Heine, and Norenzayan, "Weirdest People in the World?"
[77] Hamid et al., "Neuroimaging 'Will to Fight.'"